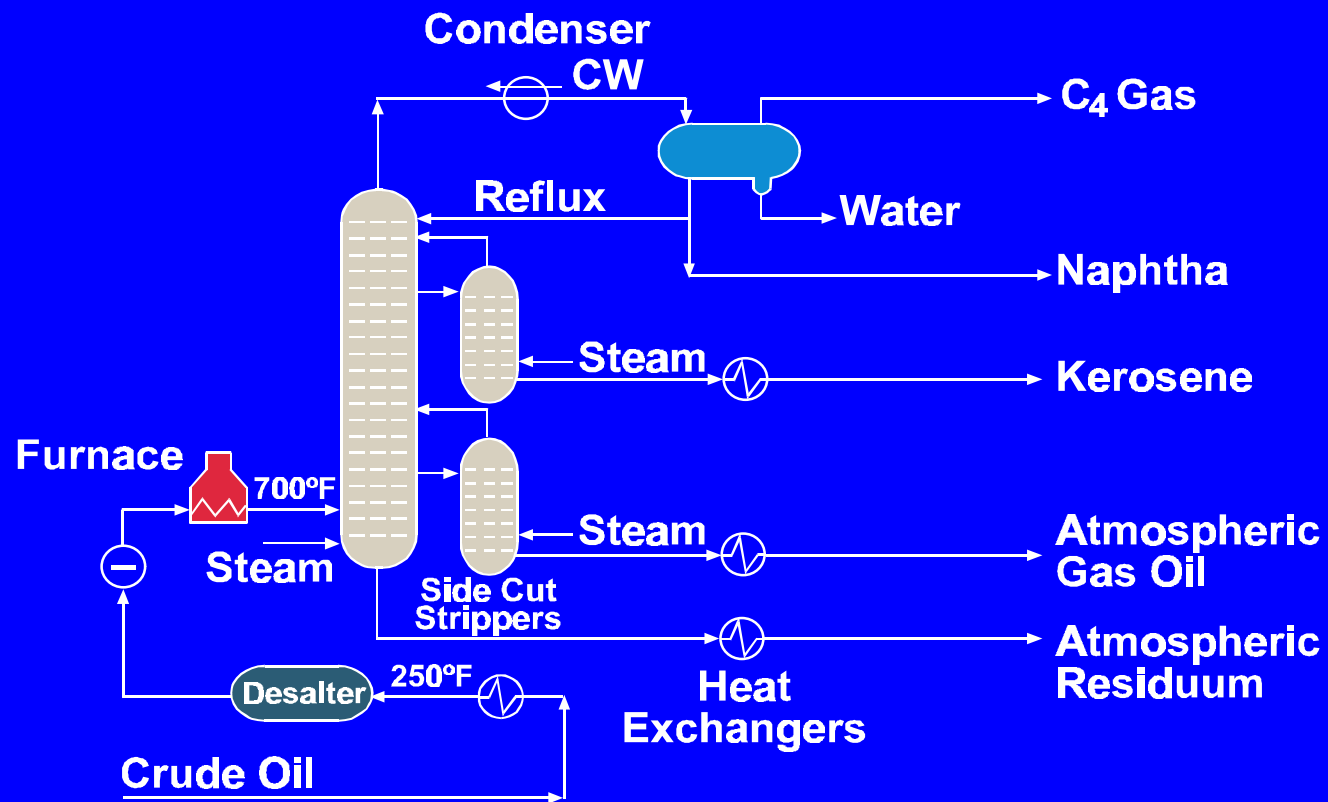


# Data Adequacy Issues On Petroleum HPVs

- Background on TSCA Nomenclature and Petroleum Chemistry
- Difficult To Test Materials
  - Substance Identification
  - Physical/Chemical Properties
  - Environmental Fate Testing
  - Ecotoxicity Testing
  - Mammalian Testing

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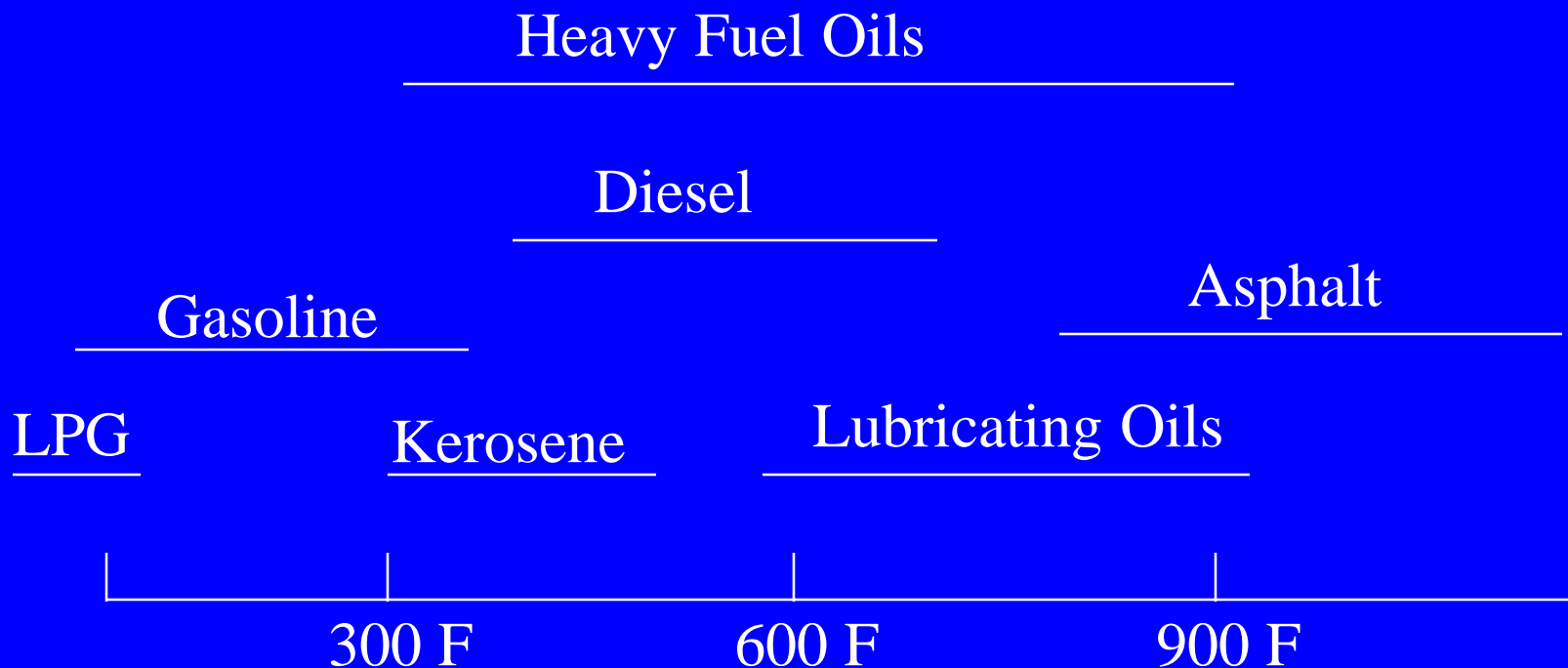
# Crude Oil Distillation



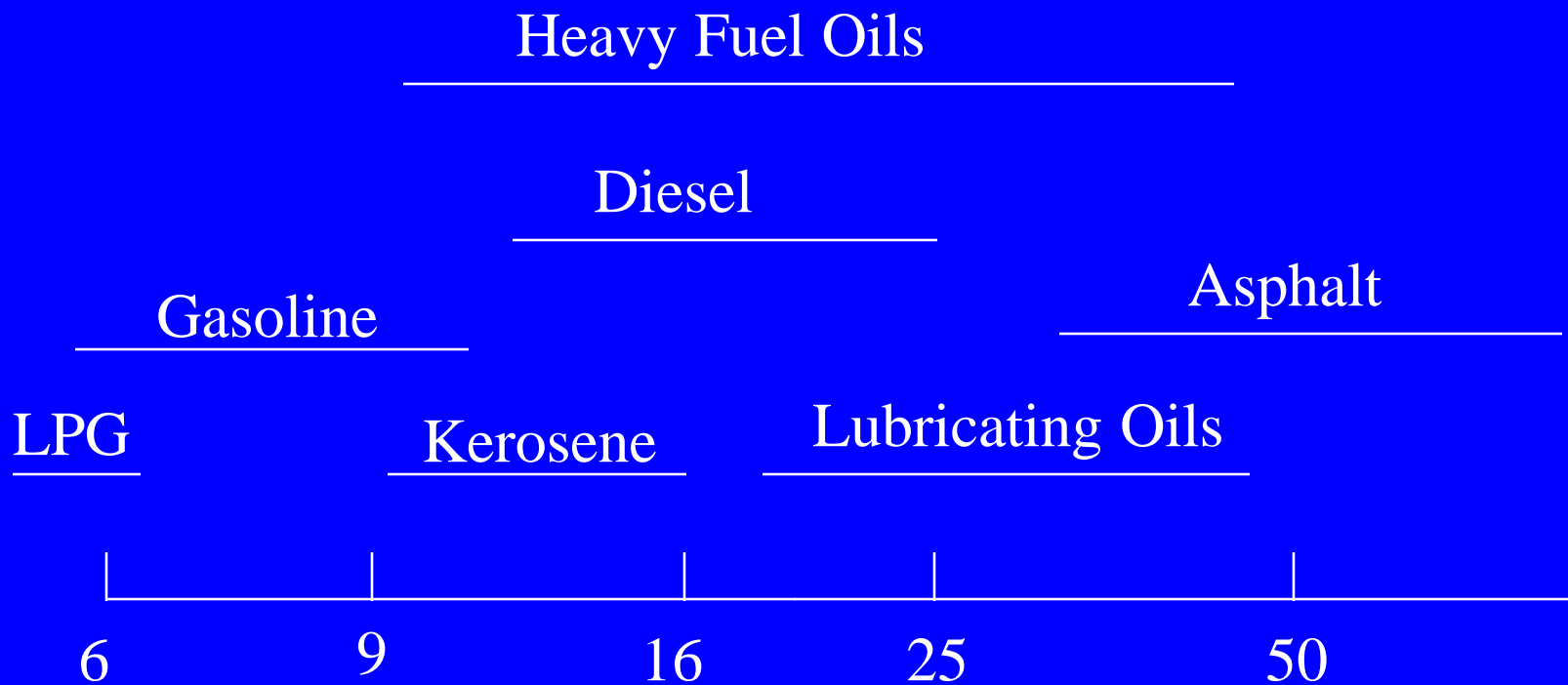
# TSCA Nomenclature

- Petroleum Process Stream Terms Included in the Chemical Substances Inventory
- Substance Definition Includes
  - Boiling Point Range
  - Carbon Number Range
  - Process Step
  - Hydrocarbon Type

# Boiling Point Range



# Carbon Number Range



# Process Step

- Atmospheric Distillation
- Vacuum Distillation
- Catalytic Cracking
- Catalytic Reforming
- Hydrocracking
- Thermal Cracking
- Hydrotreating

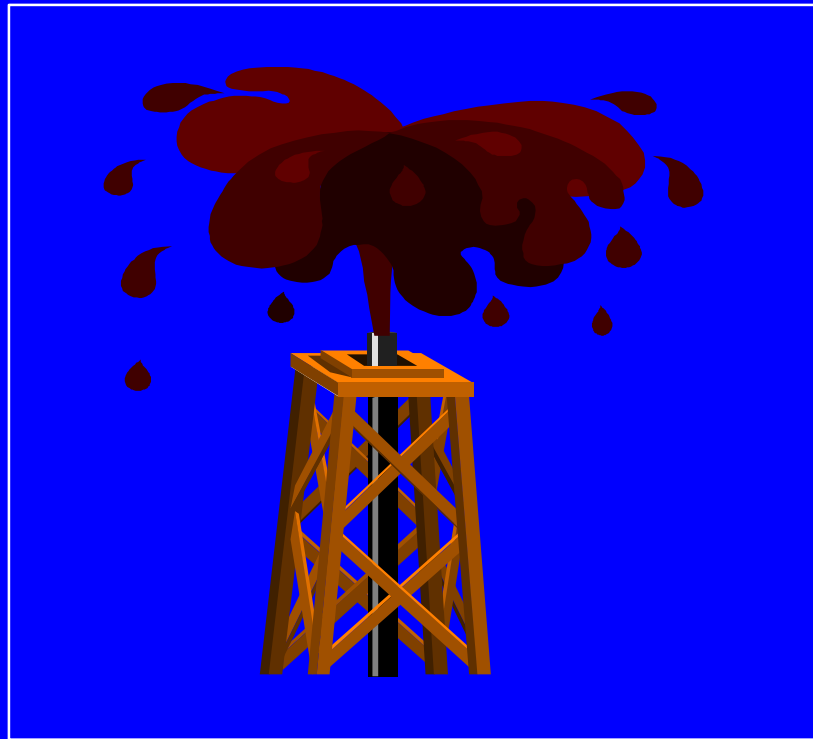
# Predominate Hydrocarbon Type

Paraffins

Olefins

Naphthenes

Aromatics



# Kerosene, Straight Run

- A complex combination of hydrocarbons, produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominately in the range of C9 through C16 and boiling in the range of approximately 150 degree C to 290 degree C (302 degree F to 554 degree F).



# Jet Fuel

Test	Minimum	Average	Maximum
Freezing Point, °F	-72	-50	-40
Aromatics, Vol %	13.0	19.0	24.4
Olefins, Vol %	0.5	1.7	5.5
Naphthalenes, Vol %	0.5	1.7	2.9
Sulfur, Total Wt %	0.002	0.061	0.24
Distillation Temp. °F			
10% Recovered	323	359	389
50% Recovered	379	410	440
90% Recovered	435	479	501

# Physical/Chemical Data

- Acceptance Of ASTM Or Other Established Methods Appropriate For The Substance
- For Complex Mixtures
  - A Range Of Values or Qualifiers (< or >) Are Appropriate For Boiling or Melting Points
  - Octanol/Water Partition Coefficients And Water Solubility Measurements Are Not Practical
    - Estimates from Likely Constituents?

-

# Environmental Fate

- Current OECD Methods For Biodegradation Studies Are Not Well Suited For Volatile Substances. The ISO/DIS 14593 Method Should Be Accepted For Volatile Substances.

# Ecotoxicity Testing

- Recommendations On Testing Sparingly Soluble and Volatile Substances (Including Petroleum Products) Has Been Made By ECETOC and Should Be Incorporated Into EPA's Guidance.
- Should “Water Insoluble” Substances Be Tested At All? What Would Be The Criteria?
-

# Mammalian Testing

- Guidance Should Allow Appropriate Routes Of Administration To Be Used.
- For Volatile Substances With A Wide-Boiling Range (e.g. Gasoline) The “Evaporative” Fraction Of The Whole Naphtha Should Be Considered Representative.
-

# EPA Data Adequacy Guidance

- The Current Draft Guidance Document Is A Good Start
- The Emphasis Must Be on Good Judgement, Few “Bright Lines”
- Methodologies Must Be Flexible To Accommodate Petroleum And Other “Difficult To Test” Substances